

REMARKS

Withdrawal of the Final Rejection and favorable reconsideration and allowance of the present application for at least the reasons given below are respectfully requested.

Claims 1-7 and 8-20 remain pending. Claim 1 is amended to make explicit that which was already implicit, namely, that the styrene-containing medium is a liquid. That the styrene reaction medium is liquid follows from the fact that the reaction according to the invention is carried out at a temperature which is in the range of from about 15 to about 50 °C, whereas the boiling temperature of styrene is approximately 145 °C. That the hydrogenation reaction is carried out in the liquid phase also is implicit by virtue of the dependent claims, e.g., claim 9, specifying a liquid hourly space velocity.

It is further noted, in this regard, that claim 1 is also amended to modify the range of "between 15 to 50 °C" to "between about 15 to about 50 °C." This amendment is presented to avoid any confusion that reaction temperatures may rise above 50 °C, such as shown, for instance, in Example I after operation for 220 days (see Table 1, page 10), as long as the reaction remains a liquid phase reaction, as claimed. In this regard, it will be noted that the specification discloses on page 7, lines 21-22, a temperature range of from 0 to 100 °C.

Accordingly, the presentation of the clarifying amendments do not raise an issue of new matter nor raise any new issues requiring further consideration or search on the part of the Examiner. Accordingly, entry of the amendment, for purpose of clarification, is requested.

The rejection of claims 1-7, 9-12, 14, 15 and 17-20, under 35 USC 103(a) as unpatentably obvious over Smoker (2,399,514) ('514) in view of Gattuso, US 4,734,540, ('540), is respectfully traversed for at least the following reasons.

While Smoker '514, provides a general disclosure of reaction temperatures in the range of from approximately 25° C to 400° C, this is given only in the context of pressures ranging from subatmospheric to superatmospheric and in regard to the conditions for vapor-phase hydrogenation. This is consistent with the disclosure and examples of vapor-phase hydrogenation. Thus, in the examples, the reaction temperature for the hydrogenation reaction is 150 °C, namely, above the boiling temperature of styrene, as would be expected for a vapor-phase process (see, e.g., page 1, right column, lines 25-28).

Accordingly, since the process of Smoker '514 is intended as a vapor-phase process one skilled in the art would not be motivated to operate at a temperature below about 150° C, noting the boiling temperatures of styrene (145°C) and phenylacetylene (139 °C).

Gattuso '540, does not provide motivation to modify the reaction disclosed by Smoker to anything other than a vapor-phase reaction. Therefore, the disclosure of a temperature

range of from 25 to 350 °C, in the environment of Gattuso '540, would not be considered relevant or applicable to the vapor phase process of Smoker '514. This is even more apparent when it is recognized that the disclosure of Gattuso '540 is given in the context of primarily a process for selectively hydrogenating acetylene in a mixture of aliphatic monoolefins, e.g., ethylene and propylene. Therefore, although also mentioning that the process could be applied to selective hydrogenation of acetylene compounds, including phenylacetylene, the practitioner would not have been motivated to carry out the process of Smoker '514 as a liquid phase reaction or at the lower temperatures useful for liquid phase reactions.

Therefore, one of ordinary skill in the art would not have been motivated by Gattuso '540 to modify the process of Smoker '514 to operate as a liquid phase reaction, much less, at a temperature between about 15 to about 50 °C.

Accordingly, the present invention would not have been prima facie obvious over the combined disclosures of Smoker '514 in view of Gattuso '540, and withdrawal of the rejection of claims 1-7, 9-12, 14, 15 and 17-20, as unpatentably obvious, is requested.

Regarding the rejection of claims 13 and 16, under 35 USC 103(a), as being unpatentable over Smoker '514 and Gattuso '540, further in view of Barry (2,511,453), it is respectfully submitted that none of these claims would have been obvious based on this combination of references.

As with Smoker '514, Barry discloses a temperature range for the hydrogenation reaction of from 125° to 350° C, consistent with the gas phase reaction described in this patent. Moreover, Barry, like Gattuso '540 is concerned with partially sulfided nickel catalysts.

Accordingly, the differences between the subject matters of claims 13 and 16 and the disclosures of Smoker '514 and Gattuso '540, would not have been obvious in view of the disclosure of Barry.

Therefore, this ground of rejection should also be withdrawn.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Attached is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned **"Version with markings to show changes made"**.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Three Amended) Process for the hydrogenation of phenyl acetylene in a styrene-containing liquid medium with the aid of a catalyst and in the presence of hydrogen gas, wherein the catalyst is a sulfur-free nickel catalyst with a nickel content of 10-25 wt.%, supported on a carrier material and wherein the hydrogenation is carried out at a temperature between about 15 and about 50 °C.

End of Appendix